

In response to the objection to the drawings, submitted herewith is a separate Letter to the Official Draftsman requesting entry of formal drawings to replace previously filed drawings.

In response to the rejection under 35 U.S.C. § 112, second paragraph, Claims 20, 24, 28 and 29 are amended to clarify Applicants' invention. The terms "channeling" and "guiding" are not intended to refer to a special function performed by the magnetic layer, but are merely intended to describe the function that magnetic layers normally perform on magnetic fields or flux in magnetic circuits. Applicants chose the verb "channeling" in their specification, but other verbs, such as "guiding" are acceptable. A person of ordinary skill in the art understands what is meant by these terms when read in light of the disclosure.² As another example of a word used in this context, the attached page from the Concise Encyclopedia of Science and Technology uses the expression "carrying magnetic flux" with respect to a magnetic circuit for a magnetic head. Such terminology would also be acceptable to Applicants if the Examiner preferred it.

Claims 20, 24, 28 and 29 are also amended to recite that the magnetic layer is "interrupted," instead of "broken" and "cut." Again, this is a matter of word choice and the Applicants are flexible if the Examiner prefers another word. Two non-limiting illustrations of what is meant by interrupted are shown in Applicants' Figs. 4-5. Again, those skilled in the art would understand what is meant by this term when Claims 20-29 are read in light of their disclosure.

²See e.g., MPEP 2173.02: "Definiteness of claim language must be analyzed, not in a vacuum, but in light of ... the content of the particular application disclosure; .. the teachings of the prior art." Seattle Box Co. v. Industrial Crating & Packing Inc., 731 F.2d 818, 826, 221 USPQ 568, 574 (Fed. Cir. 1984); In re Morasi, 710 F.2d 799, 803, 218 USPQ 289, 292 (Fed. Cir. 1983) ("It is well established that 'claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation.'" Emphasis in original).

Finally, Claim 29 is amended to more closely follow the language used in Applicants' specification at page 11, lines 17-26 with corresponding Fig. 5. In view of these amendments, all pending claims are believed to be definite. If the Examiner disagrees, however, the Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually acceptable language.³

In response to the rejections of Claims 20-29 under 35 U.S.C. § 103(a), Applicants respectfully request reconsideration of these rejections and traverse the rejections as discussed next.

Briefly recapitulating, Applicants' invention relates to a magnetic circuit including a magnetic layer that is interrupted, either by a plurality of walls of a magnetic material (Claims 20-23) or a plurality of gaps (Claims 24-30). The walls and gaps are perpendicular to the direction along which the magnetic field is guided. Advantageously, the claimed walls and gaps lower the magnetic permeability of the magnetic circuit, which permits the magnetic circuit to operate at relatively higher frequencies so as to provide a broader range of operating frequencies for the magnetic circuit.⁴

Turning now to the applied prior art, Japanese document JP 403-238804 discloses an inductance element for microwave. Such an inductance is generally formed by an electrical conducting loop, wherein an electrical current circulates. Accordingly, a magnetic field is created with a direction perpendicular to the plane for the loop. The formed impedance is thus an inductive impedance (or an "inductance" or "inductor"). The value of such an

³"Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might wish." MPEP 2173.02

⁴See for example, Applicants' specification at page 4, lines 18-25 and page 7, lines 18-29.

inductor depends on the length and on the surface of the loop. The Japanese document suggests to increase the length without increasing the area. To this end, the electrical conductive wiring 1 is not deposited on a plane substrate but on a substrate provided with grooves (a) and ridges (b).

Therefore, the electrically conducting wiring 1 is *not* a “magnetic layer,” as construed by the outstanding Office Action.⁵ Instead, a person of ordinary skill in the art would construe layer 1 in JP 403-238804 for what it is: an *electrically conductive layer* (probably Cu or Ag or Au ...). This wiring 1 does not “channel” or “guide” a magnetic field. The magnetic field, when produced by the loop, is perpendicular to the loop, i.e., perpendicular to the plane of Figure 1a. Furthermore, the substrate 2 is not “supporting the magnetic layer,”⁶ since there is no magnetic layer whatsoever in the device of JP 403-238804.

With respect to the “evenly spaced walls on the semi-insulating layer,”⁷ they are not “extending perpendicular to the given direction of the magnetic field” since the magnetic field created by the loop is not guided by the wiring 1, which is electrically conductive and not magnetic. Accordingly, the outstanding Office Action's statement that “Japan 3-238804 disclose the instant claimed invention except for: the semi-insulating layer being insulative”⁸ is inaccurate: Japan 3-238804 does not disclose *any* feature of the instant claimed invention.

With respect to EP 0 308 334, that reference discloses a composite material including alternating magnetic layers 2 and insulating layers 4. This multilayer stack is cut by insulating walls 8 so as to form a plurality of blocks 6. This composite material is not a

⁵See outstanding Office Action at page 4, paragraph 9.

⁶Id.

⁷See outstanding Office Action at page 5, line 1.

⁸Outstanding Office Action's at page 5, lines 3-4.

magnetic circuit configured to guide a magnetic field. It is configured to receive an electromagnetic wave on its surface and to absorb such a wave. The outstanding Office Action's statement that "EPO-0 308 334 discloses an insulating layer [6] supporting a plurality of magnetic layers [8]"⁹ is incorrect since stack [6] is *not* an "insulating layer," layers [8] are *not* magnetic layers, and stack [6] is *not* "supporting" layers [8] which are cut in stack [6].

Therefore, even if the combination of the applied references is assumed to be proper, the combination fails to teach a magnetic circuit including a magnetic layer that is interrupted, either by a plurality of walls of a magnetic material or by a plurality of gaps. Furthermore, there is no evidence within the record that a person of ordinary skill in the art would have found Applicants' claimed invention obvious over Japan 3-238804 in view of EPO 0308334, or any other combination of cited references. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejections based on Japan 3-238804 in view of EPO 0308334.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 20-29 is earnestly solicited.

⁹Outstanding Office Action's at page 5, line 5.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, he is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

Respectfully submitted,

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IN THE CLAIMS

Please cancel Claims 30-37 without prejudice.

Please amend Claims 20, 24, 28 and 29 as follows:

--20. (Amended) A magnetic circuit comprising a magnetic layer [channeling] guiding a magnetic field along a given direction, wherein said magnetic layer is [broken] interrupted by a plurality of walls of insulating material perpendicular to said direction.

24. (Amended) A magnetic circuit comprising a magnetic layer [channeling] guiding a magnetic field along a given direction, wherein said magnetic layer is [broken] interrupted by a plurality of gaps perpendicular to said direction.

28. (Amended) A magnetic circuit comprising a magnetic toroid [channeling] guiding a magnetic field along a circular direction wherein said toroid is [cut] interrupted by a plurality of radial gaps.

29. (Amended) A magnetic [circuit] head comprising a [rounded magnetic rear portion and two side magnetic branches, channeling] bent magnetic circuit forming an air gap, said bent magnetic circuit guiding a magnetic field along a [certain] given direction, wherein said [rear portion and said branches are cut] bent magnetic circuit is interrupted by a plurality of gaps perpendicular to said direction.--